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09/801,234	03/07/2001	Kathleen B. Gross	56290USA5A.002	5421

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EXAMINER

KEEHAN, CHRISTOPHER M

ART UNIT	PAPER NUMBER
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1712

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DATE MAILED: 07/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/801,234

Applicant(s)

GROSS ET AL.

Examiner

Christopher M. Keehan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4,6,8-12,14,16,17,19-22,24-28,34-37 and 39 is/are rejected.
- 7) ☒ Claim(s) 5,7,13,15,18,23,29-33 and 38 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Response to Amendment

The Declaration filed on April 30, 2003 under 37 CFR 1.131 is sufficient to overcome the Doba et al. reference. Doba et al. is only available as a 102(a) reference, and applicant's declaration shows a previous date to Doba et al.

Claim Rejections - 35 USC § 102

The rejection of claims 1, 2, 4-6, 8-14, 16, 17, 19-22, 24-29, and 31-35 under 35 U.S.C. 102(e) as being anticipated by Doba (WO 00/79582 A1) has been withdrawn due to applicant's arguments and amendments, and in light of a new rejection.

Claim Rejections - 35 USC § 103

The rejection of claim 3 under 35 U.S.C. 103(a) as being unpatentable over Doba (WO 00/79582 A1) has been withdrawn due to applicant's arguments, and in light of a new rejection.

The rejection of claim 18 under 35 U.S.C. 103(a) as being unpatentable over Doba ((WO 00/79582 A1) in view of Pocius et al. (4,521,490) has been withdrawn due to applicant's arguments, and in light of a new rejection.

Discussion of "X" References from the International Search Report

The following documents were cited on the International Search Report as being "X" references: WO 00 79582A, EP 0774476A, US 5364914, EP 0362772A, JP 2000-303052, JP 2000-303053, JP 2000-026828, JP 04175376, and JP 55164254. WO 00 79582A was applied in the previous office action, and applicant appears to have overcome the date of this document; US 5364914, EP 0774476A and JP 2000-303052 are applied as set forth below; JP 2000-303053 and JP 2000-02682 appear to contain the same subject matter as 2000-303053, as related documents, and were therefore not applied; JP 55164254 and JP 04175376 do not appear to contain an epoxy-reactive thioether-containing compound, respectively; and EP 0362772A did not contain subject matter above what is set forth below, and was therefore not applied.

New Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 11, 14, and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Choate et al. (5,364,914). Regarding claims 11 and 21, Choate et al. disclose an adhesive composition comprising a mixture of an epoxy resin (col.4, lines 21-61), a catalyst or curative (col.5, lines 13-35), and an epoxy-reactive thioether compound (col.1, line 36-col.2, line 27). Regarding the claim language in the preamble "useful for

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bonding substrates comprising...”, it appears this is an intended use limitation and it is not clear how the intended use of the composition materially affects the overall composition; therefore, as regards this rejection, this has not been treated further on the merits.

Regarding claim 14, Choate et al. disclose wherein the epoxy resin comprises a polyfunctional phenolic glycidyl ether epoxy resin (col.4, lines 23-35).

Claims 1-4, 6, 8-12, 20-22, 24, 26, 36, 37, and 39 are rejected under 35 U.S.C. 102(b) as being anticipated by Ha et al. (6,180,200 B1). Regarding claims 1-4, 8, 9, 11, 12, 21, and 22, Ha et al. disclose an article comprising a substrate of a noble metal, plastic, polycarbonate, and silicon, more specifically gold (col.5, lines 10-15), and an adhesive comprising the reaction product of an epoxy resin (col.10, lines 1-10), a catalyst or curative (col.10, lines 11-35), and an epoxy-reactive thioether-containing compound (col.10, lines 39-58). It is the examiner's position that the thioether containing compounds as listed by Ha et al. can possess a molecular weight in the range as instantly claimed (claim 2).

Regarding claim 6, Ha et al. disclose bisphenol epoxides (col.10, lines 1-10).

Regarding claim 10, it appears Ha et al. do not specifically disclose wherein the substrate is a print head or ink jet cartridge. Ha et al. do disclose bonding the instantly claimed adhesive to substrates that are the same as applicant's. However, it appears that naming the substrate as an ink jet cartridge or a printhead is an intended use of the

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method of bonding, and it is not clear how the intended use of the substrate materially affects the overall method of bonding.

Regarding claims 20 and 24, Ha et al. disclose an imidazole catalyst (col.10, lines 21-23).

Regarding claim 26, Ha et al. disclose an additive comprising silicon atoms (col.11, lines 10-23).

Regarding claims 36, 37, and 39, Ha et al. disclose an aliphatic thiol converted to thioether (col.10, lines 39-58).

Claims 11, 14, 16, 17, 19-21, and 24-26 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 2000-303052 (JP '052). The examiner is relying on the translated version of this document as supplied by applicant. Regarding claims 11 and 21, JP '052 discloses a curable adhesive composition comprising an epoxy resin (sections 0007-0013), a catalyst (section 0046) and curative (section 0033), and an epoxy-reactive thioether-containing compound (section 0034).

Regarding claim 14, JP '052 discloses a polyfunctional phenolic glycidyl ether epoxy resin (section 0009).

Regarding claims 16 and 17, JP '052 discloses amounts included in the instantly claimed ranges, respectively (section 0007).

Regarding claim 19, JP '052 discloses an additive as claimed (sections 0014-0025).

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Regarding claims 20 and 24, JP '052 discloses an imidazole catalyst (section 0046).

Regarding claim 25, JP '052 discloses a polyamine curative (section 0033).

Regarding claim 26, JP '052 discloses an additive comprising silicon atoms (section 0027).

Claims 11, 14, 21, and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Money et al. (5,225,486). Regarding claims 11 and 21, Money et al. disclose a curable adhesive composition comprising an epoxy resin and an epoxy-reactive thioether-containing compound (col.4, lines 22-40), and a curative (col.4, lines 3-15).

Regarding claim 14, Money et al. disclose the instantly claimed epoxy resin (col.4, lines 22-40).

Regarding claim 25, Money et al. disclose a polyamine curing agent (col.4, lines 3-15).

Claims 1, 4, 8, 11, 12, 16, 17, 19, 21, 22, 26, 28, and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Mizutani et al. (EP 0774476 A1). Regarding claims 1, 8, 11, and 21, Mizutani et al. disclose an article comprising a substrate of plastic or glass (page 16, lines 39-41), an adhesive comprising the reaction product of an epoxy resin, a catalyst or curative, and an epoxy-reactive thioether-containing

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compound adhesively bonded to the substrate (page 3, line 30-page 4, line 3), and curing the composition (page 16, lines 1-4).

Regarding claim 4, Mizutani et al. disclose a substrate of silicone dioxide (page 16, lines 39-41).

Regarding claims 16 and 17, Mizutani et al. disclose the thioether-containing compound and epoxy resin in amounts included in the instantly claimed ranges, respectively (page 7, lines 52-58).

Regarding claim 19, Mizutani et al. disclose a filler (page 16, lines 5-7).

Regarding claim 26, Mizutani et al. disclose an additive comprising silicon atoms (page 14, lines 35-57).

Regarding claim 28, Mizutani et al. disclose improving chemical and stain resistance (col.2, lines 5-12) by the steps as detailed above for claims 11 and 21 (Mizutani et al.).

Regarding claims 12, 22 and 35, Mizutani et al. disclose wherein the epoxy-reactive thioether-containing compound can have a molecular weight in the range as instantly claimed (page 3, lines 30-52).

Claims 1, 8, 11, 21, and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Chandrasekaran et al. (5,405,731). Regarding claims 1, 8, 11, 21, and 34, Chandrasekaran et al. disclose an article comprising a substrate of polyimide (col.11, lines 29-35), and an adhesive comprising the reaction product of an epoxy resin (col.14, lines 39-40 and col.6, line 67-col.7, line 11), a catalyst or curative (col.7, line 47-

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col.10, line 5), and an epoxy-reactive thioether containing compound (col.6, lines 3-15), adhesively bonded to the substrate.

Claim Rejections - 35 USC § 102/103

Claim 27 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Mizutani et al. (EP 0774476 A1). Mizutani et al., as applied above, are as set forth and incorporated herein. Mizutani et al. do not appear to specifically disclose the instantly claimed inherent properties. However, it appears these are inherently disclosed because the materials of Mizutani et al. are the same as applicant's, and the same materials would have yielded a composition with the same inherent properties. If not inherent, then it would have been obvious to one of ordinary skill in the art at the time the invention was made for the composition of Mizutani et al. to have achieved at least similar inherent properties because the materials of Mizutani et al. are at least similar to those of applicant's, and at least similar materials would have yielded a composition with at least similar inherent properties.

Claim 27 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ha et al. (6,180,200). Ha et al., as applied above, are as set forth and incorporated herein. Ha et al. do not appear to specifically disclose the instantly claimed inherent properties. However, it appears these are inherently disclosed because the materials of Ha et al. are the same as

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applicant's, and the same materials would have yielded a composition with the same inherent properties. If not inherent, then it would have been obvious to one of ordinary skill in the art at the time the invention was made for the composition of Ha et al. to have achieved at least similar inherent properties because the materials of Ha et al. are at least similar to those of applicant's, and at least similar materials would have yielded a composition with at least similar inherent properties.

Claim 27 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over JP 2000-303052 (JP '052). JP '052, as applied above, is as set forth and incorporated herein. JP '052 does not appear to specifically disclose the instantly claimed inherent properties. However, it appears these are inherently disclosed because the materials of JP '052 are the same as applicant's, and the same materials would have yielded a composition with the same inherent properties. If not inherent, then it would have been obvious to one of ordinary skill in the art at the time the invention was made for the composition of JP '052 to have achieved at least similar inherent properties because the materials of JP '052 are at least similar to those of applicant's, and at least similar materials would have yielded a composition with at least similar inherent properties.

Claim Rejections - 35 USC § 103

Claims 12, 13, 16, 17, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Money et al. (5,225,486). Regarding claims 12 and 22, Money et al.

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do not appear to specifically disclose a molecular weight for the epoxy-reactive thioether-containing compound. However, as Money et al. disclose polyglycidyl thioethers, it appears that it would have been obvious to one of ordinary skill in the art at the time the invention was made for the compound of Money et al. to have an at least similar molecular weight as instantly claimed.

Regarding claim 13, Money et al. disclose a thioether-containing compound of thioether di-epoxide (col.4, line 37).

Regarding claims 16 and 17, Money et al. disclose the epoxy resin being present in an amount included in the instantly claimed range (Examples). Money et al. do not appear to specifically disclose adding the epoxy-reactive thioether-containing compound in the instantly claimed amount. Money et al. do teach that a mixture of epoxy resin and epoxy-reactive thioether-containing compound can be used in the composition (col.4, lines 16-40), thereby identifying these as result-effective variables. However, as applicant has shown no criticality as to the instantly claimed range, and the claimed range is so broad, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have added this compound in a variety of amounts, including an amount in the instantly claimed range, through routine experimentation and optimization. A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. *In re Boesch*, 205 USPQ 215. It has been held that where the general conditions are disclosed in the prior art, it is not inventive to discover the

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optimum or workable ranges by routine experimentation. *In re Aller*, 105 USPQ 233, 235.

Claims 12 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2000-303052 (JP '052). Regarding claims 12 and 22, JP '052 does not appear to specifically disclose a molecular weight for the epoxy-reactive thioether-containing compound. However, as applicant has shown no criticality as to the instantly claimed molecular weight range, and as JP '052 discloses compounds that can easily have this molecular weight, it appears that it would have been obvious to one of ordinary skill in the art at the time the invention was made for the compound of JP '052 to have an at least similar molecular weight as instantly claimed.

Allowable Subject Matter

In the previous office actions, claims 7, 15, 23, and 30 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 5, 13, 18, and 29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. A reasonable search of the prior art of record failed to reveal the limitations as set forth in these claims, specifically

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the instantly claimed epoxy-reactive thioether-containing compound comprising a thioether di-epoxide.

Claims 31-33 and 38 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. A reasonable search of the prior art of record failed to reveal the limitations as set forth in these claims, specifically a method of flexibilizing and improving an epoxy resin adhesive with the instant components.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher M. Keehan whose telephone number is (703) 305-2778. The examiner can normally be reached on Monday-Friday, from 6:30 to 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert A. Dawson can be reached on 308-2340. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

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Christopher Keehan *cpw*

June 20, 2003

A handwritten signature in cursive script, reading "Robert A. Dawson". The signature is fluid and written in dark ink.

Robert Dawson
Supervisory Patent Examiner
Technology Center 1700